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MARGARET PAUL CELLUCCI
Governor

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL DOCUMENTS
GOVERNMENT COLLECTION
ONE WINTER STREET, BOSTON, MA 02108

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University of Massachusetts
Depository Copy
November 2, 1998

TRUDY COXE
Secretary

DAVID B. STRUHS
Commissioner

Re: Innovative / Alternative Subsurface Sewage Treatment and Disposal Technologies

Dear Boards of Health:

It has been over three years since Title 5 of the Massachusetts Environmental Code, 310 CMR 15.000, first contained provisions for the approval of the use of innovative and alternative (I/A) technologies. These technologies have helped many homeowners with property that cannot support a conventional, on-site sewage treatment and disposal system. It was, in large part, your willingness to accept these technologies in your communities that made this possible. I know it was not easy. I would like to take this opportunity to thank you for your professionalism and dedication in helping us implement these new sections of Title 5.

The Department constantly is reviewing the performance of I/A technologies. After a careful review of the treatment technologies approved for Remedial Use, the Department is pleased to issue the enclosed modified Remedial Use Approval letters. The major changes are:

1. Our evaluation of the performance data on these technologies revealed that systems designed, installed and maintained in accordance with our approvals and the manufacturers' recommendations provide adequate treatment consistently over time. Therefore, the monitoring requirements have been reduced from three years to one year. Please note, however, that each system still must be covered by an operation and maintenance agreement at all times.
2. Since these technologies have shown, for remedial situations, that they can provide a degree of environmental protection at least equivalent to that of a system designed and installed in accordance with 310 CMR 15.100 - 15.293, the Department will now offer these technologies much of the same flexibility allowed under the local upgrade approval provisions of the Code, for conventional Title 5 systems. Therefore, the local approving authority now may allow the use of these approved technologies, under a local upgrade approval, to the extent allowed in 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), i.e. with reductions to the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their



tributaries. Under the current approval letters, DEP approval would have been required for these reductions.

Please note that systems requiring one of the three reductions (size of the SAS, depth to groundwater or depth of naturally occurring pervious material) may be approved solely by the local approving authority. Proposed systems on difficult sites that require more than one reduction still will have to be approved by both the local approving authority and the Department. For example, if a property is located on a site with three feet of naturally occurring pervious material and the soil absorption system is reduced by 60%, the system would require the approval of the local approving authority and the DEP. Applicants should use application package BRP WP 64c for systems requiring DEP approval.

These changes will decrease homeowners' costs and, in many cases, the need for DEP approval for individual systems. Remedial Use Approval letters that have been modified to incorporate the above changes are enclosed. These are:

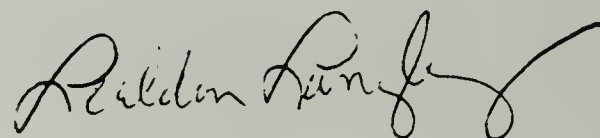
- AWT Bioclere
- Bio-Microbics Single Home FAST and MicroFAST
- Jet Aerobic Model number J-353
- Recirculating Sand Filter
- Saneco Intermittent Sand Filter
- Smith & Loveless Modular FAST
- Waterloo Biofilter

In addition, please find enclosed the recently issued approval letters for the following technologies:

- Bio-Microbics MicroFAST: Provisional Use Approval
- Cromaglass Wastewater Treatment Systems: General Use Certification
- Jet Aerobic Model number J-500: Remedial Use Approval
- Saneco High Rate Intermittent Sand Filter: Remedial Use Approval
- Singulair: Remedial Use Approval

Should you have any questions regarding this matter, please do not hesitate to contact Christos Dimisioris, of my staff, at (617) 292-5912.

Sincerely,



Lealdon Langley
Acting Program Director
Watershed Permitting Program

cc: DEP Regional Offices
John Higgins, DEP Millbury



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MARGARETO PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Smith & Loveless, Inc.
14040 Santa Fe Trail Drive
Lenexa, KS 66215

Trade name of technology and model: Modular FAST (hereinafter the "System")

Date of Application: December 23, 1994
Transmittal Number: 98299
Date of Issuance: March 24, 1995
Modified Date: November 2, 1998
Effective date: November 2, 1998
Expiration date: November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: Smith & Loveless, Inc., 14040 Santa Fe Trail Drive, Lenexa, KS 66215 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

Lealdon Langley, Acting Program Director
Watershed Permitting Program
Department of Environmental of Environmental Protection

11 / 2 / 98
Date

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

DEP on the World Wide Web: <http://www.magnet.state.ma.us/dep>



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I. Design Standards

1. The Modular FAST treatment system (Fixed Activated Sludge Treatment) consists of a primary settling zone and an aerobic biological zone. Solids are trapped in the primary zone where they settle. In the aerobic zone, the bacteria colony attaches itself to the surface of a submerged media bed and feeds on the sewage as it circulates.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed between the septic tank and the pump chamber of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
4. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local

approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.

4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.

II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.

2. Maintenance agreement:
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.
8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department


The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that

would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date .

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

ARGEO PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE

Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Bio-Microbics, Inc.
8271 Melrose Drive
Lenexa, KS 66214

Trade name of technology and model: Micro FAST Treatment System (hereinafter the "System").

Date of Application: July 8, 1997
Transmittal Number: 123601
Date of Issuance: May 29, 1998
Modified Date: November 2, 1998
Effective date: November 2, 1998
Expiration date: November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: Bio-Microbics, Inc., 8271 Melrose Drive, Lenexa, KS 66214 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

Lealdon Langley, Acting Program Director

Watershed Permitting Program

Department of Environmental of Environmental Protection

11/2/98
Date

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DEP on the World Wide Web <http://www.magnet.state.ma.us/dep>

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I. Design Standards

1. The Micro FAST treatment system (Fixed Activated Sludge Treatment) consists of a primary settling zone and an aerobic biological zone. Solids are trapped in the primary zone where they settle. In the aerobic zone, the bacteria colony attaches itself to the surface of a submerged media bed and feeds on the sewage as it circulates.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed in the second compartment of a two compartment septic tank with a total liquid capacity of at least 1,500 gallons. The septic tank shall be installed between the building sewer and the pump chamber of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
4. The System is approved for use at facilities with a maximum design flow of 440 gallons per day.
5. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.

3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.

2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
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II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. Maintenance agreement:
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.

8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

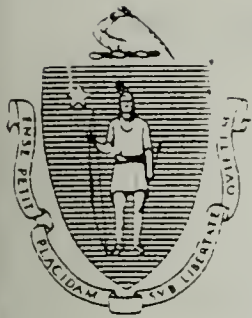
Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department

The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MARGO PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE
Pursuant to Title 5, 310 CMR 15.000

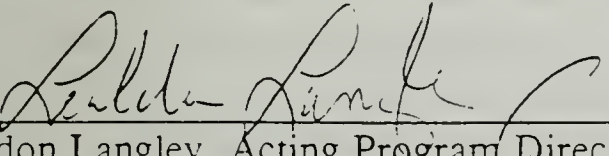
Name and Address of Applicant:
Bio-Microbics, Inc.
8271 Melrose Drive
Lenexa, KS 66214

Trade name of technology and model: Single Home FAST (hereinafter the "System")

Date of Application: December 23, 1994
Transmittal Number: 98300
Date of Issuance: March 24, 1995
Modified Date: November 2, 1998
Effective date: November 2, 1998
Expiration date: November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: Bio-Microbics, Inc., 8271 Melrose Drive, Lenexa, KS 66214 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.




Lealdon Langley, Acting Program Director
Watershed Permitting Program
Department of Environmental of Environmental Protection

11/2/98

Date

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

DEP on the World Wide Web: <http://www.magnet.state.ma.us/dep>

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I. Design Standards

1. The Single Home FAST treatment system (Fixed Activated Sludge Treatment) consists of a primary settling zone and an aerobic biological zone. Solids are trapped in the primary zone where they settle. In the aerobic zone, the bacteria colony attaches itself to the surface of a submerged media bed and feeds on the sewage as it circulates.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed in the second compartment of a two compartment septic tank with a total liquid capacity of at least 1,500 gallons. The septic tank shall be installed between the building sewer and the pump chamber of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
4. The System is approved for use at facilities with a maximum design flow of 550 gallons per day.
5. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.

3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.

2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.

II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. Maintenance agreement:
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.

8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department

The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.

MFAST.REM



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET BOSTON MA 02108 617-292-5500

MARGARET PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Waterloo Biofilter System, Inc.
2 Taggart Court, Unit 4
Guelph, Ontario N1H 6H8

Trade name of technology and model numbers: Waterloo Biofilter (hereinafter the "System")

Date of Application: March 30, 1995
Transmittal Number: 109531
Date of Issuance: February 10, 1997
Modified Date: November 2, 1998
Effective date: November 2, 1998
Expiration date: November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: Waterloo Biofilter System, Inc., 2 Taggart Court, Unit 4, Guelph, Ontario N1H 6H8 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

Lealdon Langley, Acting Program Director
Watershed Permitting Program
Department of Environmental of Environmental Protection

11/2/98
Date

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

DEP on the World Wide Web: <http://www.magnet.state.ma.us/dep>

Printed on Recycled Paper

I. Design Standards

1. The Waterloo Biofilter is an alternative to a sand filter which uses a higher loading rate. It is installed between the septic tank and leaching field. The system uses a porous plastic foam as the media over which septic tank effluent is pumped and allowed to flow. The media has a high pore fraction and allows flow of air concurrent with the downward flow of effluent, maintaining aerobic conditions. Airflow can be maintained with a blower or by natural convection. The filter material provides an attachment means for bacteria which digest the sewage.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed between the septic tank and the pump chamber of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
4. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local

- approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.

II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.

2. Maintenance agreement.
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.
8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department

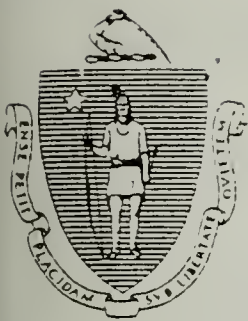
The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions

that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.

WATER2.REM1



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MARGO PAUL CELLUCCI
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TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE

Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

AWT Environmental Inc.
241 Duchaine Blvd.
New Bedford, Massachusetts 02745

Trade name of technology and model numbers: Bioclere 16, 22, 24, and 30 series Units
(hereinafter the "System")

Date of Application: December 23, 1994
Transmittal Number: 96730
Date of Issuance: March 24, 1995
Modified: November 2, 1998
Effective date: November 2, 1998
Expiration date: November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: AWT Environmental, Inc., 241 Duchaine Blvd., New Bedford, Massachusetts 02745 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

Lealdon Langley, Acting Program Director
Watershed Permitting Program
Department of Environmental of Environmental Protection

11 / 1 / 98
Date

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

DEP on the World Wide Web: <http://www.magnet.state.ma.us/dep>

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I. Design Standards

1. The Bioclere units utilize a trickling filter concept for wastewater treatment. The unit is added to a conventional system between the septic tank and the soil absorption system. The filter consists of a bed of highly permeable plastic media to which microorganisms are attached and through which septic tank effluent is trickled. The base of the unit serves as a final settling basin which discharges to a traditional soil absorption system.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed between the septic tank and the pump chamber of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
4. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local

- approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.

II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.

2. Maintenance agreement:

- i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
- ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.

3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.
8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department

The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions

that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date .

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.

AWT3.REM



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

ARGEO PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

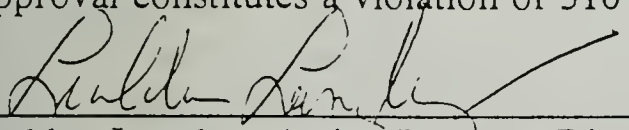
Saneco, Inc.
65 Eastern Avenue
Box 9B
Essex, MA 01929

Trade name of technology and model: Low-Rate Intermittent Sand Filter used in conjunction with a screened pump vault located in the septic tank as manufactured by Orenco Systems, Inc. (hereinafter the "System").

Date of Application:	December 23, 1994
Transmittal Number:	97892
Date of Issuance:	March 24, 1995
Modified date:	November 2, 1998
Effective date:	November 2, 1998
Expiration date:	November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: Saneco, Inc., 65 Eastern Avenue, Box 9B, Essex, Massachusetts 01929 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.




Lealdon Langley, Acting Program Director
Watershed Permitting Program
Department of Environmental of Environmental Protection

11 / 2 / 98
Date

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DEP on the World Wide Web <http://www.magnet.state.ma.us/dep>

 Printed on Recycled Paper

I. Design Standards

1. The technology consists of a screen pump vault which fits into the septic tank, an Intermittent Sand Filter and a pump chamber. The Low-Rate Intermittent Sand Filter consists of a 24 inch layer of sand sandwiched between two layers of stone, the minimum depth of each stone layer is six inches. A distribution manifold embedded in the top layer of stone distributes the screened septic tank effluent over the sand. A 4 inch perforated pipe embedded in the bottom layer of stone collects the filtered effluent and delivers it to a pump chamber for disposal via pressure distribution in a soil absorption system.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed between the building sewer and the soil absorption system of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
4. The loading rate for the Low-Rate Intermittent Sand Filter shall not exceed 1.2 gallons per square foot per day.
5. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.

3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.

2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
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II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. Maintenance agreement:
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.

8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

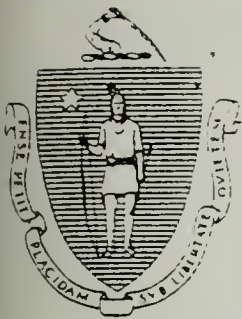
Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department

The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET BOSTON MA 02108 617-292-3500

MARGO PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE
Pursuant to Title 5. 310 CMR 15.000

Name and Address of Applicant:

Saneco, Inc.
65 Eastern Avenue
Box 9B
Essex, MA 01929

Trade name of technology and model: High-Rate Intermittent Sand Filter used in conjunction with a screened pump vault located in the septic tank as manufactured by Orenco Systems, Inc. (hereinafter the "System").

Date of Application: March 7, 1995
Transmittal Number: 93847
Date of Issuance: November 2, 1998
Expiration date: November 2, 2003

Authority for Issuance

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Lealdon Langley, Acting Program Director

Watershed Permitting Program

Department of Environmental of Environmental Protection

11/2/98
Date

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I. Design Standards

1. The technology consists of a screen pump vault which fits into the septic tank, an Intermittent Sand Filter and a pump chamber. The High-Rate Intermittent Sand Filter consists of a 24 inch layer of sand sandwiched between two layers of stone, the minimum depth of each layer of stone is six inches. A distribution manifold embedded in the top layer of stone distributes the screened septic tank effluent over the sand. A 4 inch perforated pipe embedded in the bottom layer of stone collects the filtered effluent and delivers it to a pump chamber for disposal via pressure distribution in a soil absorption system.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed in series between the building sewer and the soil absorption system of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
4. The loading rate for the Intermittent Sand Filter shall not exceed 2.2 gallons per square foot per day.
5. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.

3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.

2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.

II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. Maintenance agreement:
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.

8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department

The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.

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COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET BOSTON MA 02108 617-292-5500

MARGO PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Stephen Nelson
175 Spring Street
Rockland, MA 02370

Trade name of technology and model: Jet Model Numbers J-500 and J-353 (hereinafter the "System").

Date of Application:	May 6, 1998
Transmittal Numbers:	116421, 135486
Date of Issuance:	November 2, 1998
Modified (for J-353):	November 2, 1998
Expiration date:	November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: Stephen Nelson, 175 Spring Street, Rockland, MA 02370 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

Lealdon Langley, Acting Program Director
Watershed Permitting Program
Department of Environmental of Environmental Protection

11 / 2 / 98
Date

I. Design Standards

1. The Jet system uses a primary settling zone, aerobic treatment zone, and a secondary clarifying zone to treat wastewater. Solids settle or float in the primary chamber. In the aerobic zone, a fixed media encourages the growth of bacteria which digest the incoming wastewater. Aerobic conditions are maintained by an aspirator which mixes and disperses fine air bubbles through the aerobic zone. Clear effluent is produced in the final clarifying zone where solids are settled back into the aeration zone.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed in series between the building sewer and the pump chamber of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval. The use of a septic tank is not required.
4. The System is approved for use at facilities with a maximum design flow of 450 gallons per day.
5. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.

3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.

2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.

II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. Maintenance agreement:
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.

8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department

The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.

JET5002.REM



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MARGO PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Siegmund Environmental Services, Inc.
49 Pavilion Avenue
Providence, RI 02905

Trade name of technology and model: Singlair model numbers 960N, 960/750, 960/1000, 960/1250, and 960/1500 (hereinafter the "System").

Date of Application: July 29, 1998
Transmittal Number: p20588
Date of Issuance: November 2, 1998
Expiration date: November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: Siegmund Environmental Services, Inc., 49 Pavilion Avenue, Providence, RI 02905 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

Lealdon Langley, Acting Program Director
Watershed Permitting Program
Department of Environmental of Environmental Protection

11 / 2 / 98
Date

I. Design Standards

1. The Singular treatment system uses added air to aerobically treat domestic wastewater. The treatment process takes place in the three-compartment precast concrete tank. The initial chamber removes gross solids, grease and oil from the wastewater by settling and flotation. The clarified liquid is then treated in a second chamber to which air is added to mix and aerate the liquid and promote aerobic digestion. The third chamber contains the Bio-Kinetic unit, which promotes additional filtration and settling.
2. This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the system.
3. The System shall be installed in series between the building sewer and the pump chamber of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval. The use of a septic tank is not required.

4.

Model	960N	960/750	960/1000	960/1250	960/1500
Maximum Design Flow	500 GPD	750 GPD	1000 GPD	1250 GPD	1500 GPD

5. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private

- wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally

occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.

II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any

other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.

6. Design, installation and use of the System shall be in strict conformance with this Approval, the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. Maintenance agreement:
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
3. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
4. Effluent from the System shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements.
5. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310

CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.

6. The owner/operator of the System shall at all times properly operate and maintain the System.
7. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.
8. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Special Conditions applicable to the Company

1. Before January 31st of each year, the Company shall submit to the Department, a report, signed by a corporate officer, general partner, or Company owner, that contains information on the System for the previous calendar year. The report shall state the number of units of the System sold for use in Massachusetts during the previous year. The report also shall include the address of each installed System, the owner's name and address, the type of use (residential, commercial, school, institutional) and the design flow; all known failures, malfunctions, and corrective actions taken and the address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 60 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. The notice shall include the name and address of the new owner, the date of transfer, and the respective responsibilities of the parties relative to the System. Unless the Department determines otherwise, this Approval automatically will transfer to the new owner.
3. The Company shall furnish the Department, within a reasonable time, any information that the Department requests regarding the System.
4. Prior to its sale of the System, the Company shall provide the purchaser with a copy of this Approval. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.
5. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted by the Department.

V. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

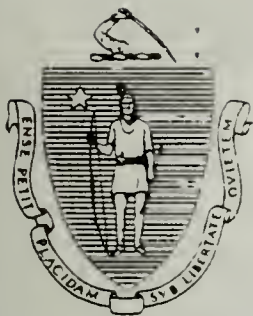
Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VI. Rights of the Department

The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the Company.

VII. Expiration date

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use, unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MARGARET PAUL CELLUCCI
Governor

TRUDY CONE
Secretary

DAVID B. STRUHS
Commissioner

APPROVAL FOR REMEDIAL USE
Pursuant to Title 5, 310 CMR 15.000

Trade name of technology and model number: Recirculating Sand Filter designed in accordance with Department guidance (hereinafter the "System")

Date of Issuance: March 24, 1995
Modified: November 2, 1998
Effective date: November 2, 1998
Expiration date: November 2, 2003

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use in the Commonwealth of Massachusetts of the System described herein. Use of the System is conditioned on and subject to compliance by the System owner/operator with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

Lealdon Langley, Acting Program Director
Watershed Permitting Program
Department of Environmental of Environmental Protection

11/2/98
Date

I. Design Standards

1. The System has a recirculation tank and pump, and an underdrained open sand filter. Effluent from the septic tank is collected in the recirculating tank, where it is mixed with the effluent returned from the sand filter. The mixture is periodically pumped onto the sand filter and evenly distributed over the filter surface. A drain line, at the bottom of the sand collects the sand filter effluent and returns it by gravity to the recirculating tank (or if the tank is full, to the pump chamber). A Massachusetts registered professional engineer or registered sanitarian may design a System.
2. **This Remedial Use Approval authorizes the use of the System where the local approving authority finds the following: a) that the System is for upgrade of a failed, failing or nonconforming system, and b) the design flow for the facility is less than 10,000 gallons per day, and there is no increase in design flow to be served by the System. The System, as approved in this Remedial Use Approval, cannot be used for new construction or where there is an increase in design flow.**
3. The System shall be installed between the septic tank and the pump chamber of a standard Title 5 system constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
4. The System may be used in soils with a percolation rate of up to 90 min./inch. For soils with a percolation rate of 60 to 90 min./inch, the effluent loading rate shall be 0.15 gpd / sq.ft.
5. The System must be designed in accordance with the Department's guidance on Recirculating Sand Filters.

A. Reduced Soil Absorption System

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction, no greater than 50%, in the area of the soil absorption system required by 310 CMR 15.242, provided that all of the following conditions are met:

1. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.
2. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.

3. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

B. Reduction of the Groundwater Separation Distance

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation, provided that all of the following conditions are met:

1. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is maintained.
2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required four feet of naturally occurring pervious material is allowed.

C. Reduction of the Requirement for four feet of Naturally Occurring Pervious Material

In approving design and installation of the System by a particular owner/operator, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

1. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site, and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained, and that a shared system is not feasible.

2. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, the soil absorption system size shall fully conform to the design standards in 310 CMR 15.242.
3. Unless a reduction is allowed by a variance approved by the local approving authority and the Department pursuant to 310 CMR 15.410 et seq., or the local approving authority has allowed a reduction under a local upgrade approval pursuant to 310 CMR 15.405 (1) (a), (b), (f), (g), and (h), the setbacks from property line, cellar wall, swimming pool, slab foundation, public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries shall comply with the distances in 310 CMR 15.211.
4. Unless a reduction is approved by the Department pursuant to 310 CMR 15.284, no reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the stone underlying the soil absorption system and the high groundwater elevation is allowed.

II. General Conditions

1. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless a variance as provided for in 310 CMR 15.004 is obtained.
2. Pressure distribution designed in accordance with Department guidance is required.
3. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by a U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
5. In accordance with applicable law, the Department or the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as the Department or the local approving authority deems necessary to protect public health, safety, welfare or the environment.
6. Design, installation and use of the System shall be in strict conformance with this Approval, the DEP's design guidance and specifications and 310 CMR 15.000, subject to the exceptions allowed in this Approval.

III. Special Conditions applicable to the System Owner/Operator

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. Maintenance agreement:
 - i. Throughout its life, the System shall be under a maintenance agreement. No maintenance agreement shall be for less than one year.
 - ii. No System shall be used until an operation and maintenance agreement and contingency plan are approved by the local approving authority which:
 - provides for the contracting of a person or firm competent in providing services consistent with the System's specifications and the operation and maintenance requirements specified by the design engineer and those specified by the Department;
 - contains procedures for notification to the local board of health and the Department within 24 hours of a System failure, malfunction or alarm event and for corrective measures to be taken immediately.
 - provides the name of the operator, which must be a Massachusetts certified operator or operators if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must maintain the System at least every three months and anytime there is an alarm event. The provisions of 314 CMR 12.00 are incorporated herein and apply to the maintenance and operation of the System; provided, however, that DEP approval is not required for the operation agreement.
 - iii. For a System with a design flow of less than 2,000 gallons per day, the inspection required by 310 CMR 15.202 (4) (i) is not applicable to a System designed, installed and maintained in compliance with this Approval.
3. The owner shall submit to the Department a copy of the written approval of the local approving authority within 30 days of the date of issuance of their approval. For a System with a design flow of less than 2,000 gallons per day, DEP approval, as specified in 310 CMR 15.202 (5), is not required.
4. Prior to use of the System, the owner of the System shall submit to the Department the name and address of the operator or operators that will operate the System. Every time the operator or operators are changed, the owner shall notify the Department and the local approving authority in writing within seven days of such change.
5. Effluent from Systems that will not be located in Nitrogen Sensitive Areas, as defined in 310 CMR 15.215, shall be monitored quarterly. At a minimum, the following parameters shall be monitored: pH, BOD₅, and TSS. Every time the System is monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year. After one year of monitoring and reporting and at the request of the owner/operator, the Department may reduce or eliminate these monitoring and reporting requirements. Monitoring as specified in 310 CMR 15.202 (4) (c) is not required.
6. Systems located in Nitrogen Sensitive Areas, as defined in 310 CMR 15.215, shall be monitored in accordance with 310 CMR 15.202 (4) (c). Every time the System is

- monitored, the water meter reading also shall be recorded. All monitoring data shall be submitted to the Department by January 31 of each year for the previous calendar year.
7. When a sanitary sewer connection becomes feasible, within 60 days of such feasibility, the owner/operator of the System shall obtain necessary permits and connect the facility served by the System to the sewer, shall abandon the System in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the Department, and shall in writing notify the Department of the abandonment.
 8. The owner/operator of the System shall at all times properly operate and maintain the System.
 9. The owner/operator shall furnish the Department, within a reasonable time, any information that the Department may request regarding the operation and performance of the System.
 10. The owner of a facility served by the System shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to any new owner.

IV. Reporting

All notices and documents required to be submitted to the Department shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

V. Rights of the Department

The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, noncompliance with the terms of this Approval, non-payment of any annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare, or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System, and/or the designer.

VI. Expiration date

Notwithstanding the expiration date of this Approval, any System installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use,

unless the Department, the local approval authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.

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